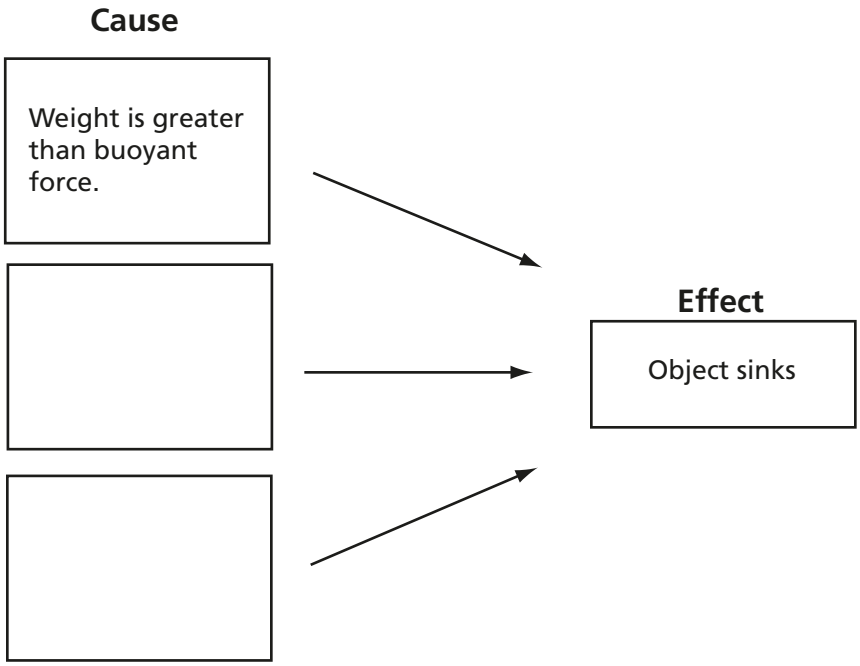
Floating and Sinking (pp. 424–429)

This section describes a force that acts on objects under water. It also explains why some objects float and others sink.

Use Target Reading Skills

As you read the section, identify the reasons an object sinks. Write the reasons in the "cause" section of the graphic organizer. Look for answers in the text and the figure captions.

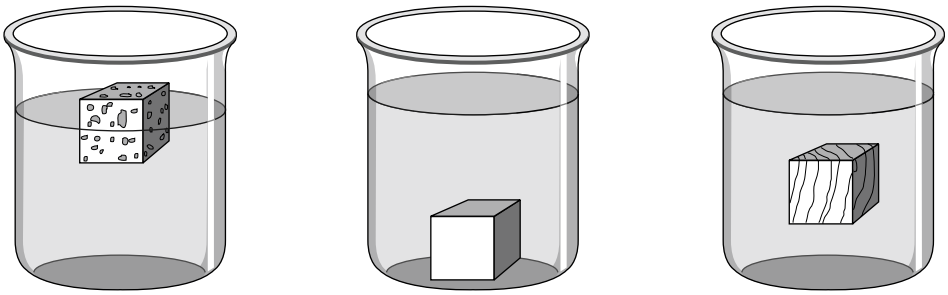


Density (pp. 425–426)

1. The _____ of a substance, no matter what state or shape, is its mass per unit volume.
2. What formula do you use to find density?

_____

3. What is the density of water? _____



_____ _____ _____

4. The illustrations above show three objects in water. All three objects are equal in volume. The captions for these illustrations are listed below. Write the letter of the correct caption under each illustration.

a. Object is more dense than water.
b. Object is less dense than water.
c. Object has a density that is equal to water's density.

5. Is the following sentence true or false? An object that is more dense than the fluid in which it is immersed floats on the surface.

_____

6. An object that is _____ dense than the fluid in which it is immersed sinks.

7. Why does a helium balloon rise in air while an ordinary balloon filled with air does not?

_____

_____

_____

_____

_____

_____

8. When a submarine pumps water out of its floatation tanks, its density decreases and it floats. Why does its density decrease?

_____

_____

_____

_____

Floating and Sinking *(continued)*

9. Usually, the hull of a ship contains a large volume of air. Why?

_____

_____

10. The amount of fluid displaced by a submerged object depends on its _____.

Buoyancy (p. 427)

11. Water exerts a(n) _____ force that acts on a submerged object.

12. Circle the letter of each sentence that is true about a buoyant force.

a. It acts against the force of gravity.
b. It acts in an upward direction.
c. It makes an object feel heavier.
d. It makes an object feel lighter.

Archimedes' Principle (pp. 428–429)

13. How much fluid does a submerged object displace?

_____

_____

14. What does Archimedes' principle state?

_____

_____

15. Is the following sentence true or false? If the weight of a submerged object is less than the buoyant force, the object will sink.

_____

16. What happens when the weight of a submerged object is exactly equal to the buoyant force?

_____

_____

_____